
Begonia hahiepiana, a New Species of *Begonia* Section *Sphenanthera* (Begoniaceae) from Vietnam

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ABSTRACT. *Begonia hahiepiana* H. Q. Nguyen & Tebbitt (Begoniaceae; section *Sphenanthera* (Hasskarl) Warburg), a new species from Phu Tho Province, Vietnam, is described and illustrated. This new species is most readily distinguished from the closely related *B. balansana* Gagnepain and *B. ceratocarpa* S. H. Huang & Y. M. Shui by its upper leaf surfaces, which are an iridescent dark blue (rather than glossy green) and have deeply sunken veins giving them a puckered appearance (rather than smooth), by its outer pair of tepals having a covering of red trichomes on their outer surfaces (rather than appearing glabrous throughout), and by its fruits, which are spherical with three thickened rib-like wings (rather than being either rhomboidal with three horned appendages or star shaped with six, or sometimes five or seven, fleshy wedge-shaped points). Fieldwork indicates that the new species has a restricted distribution and a total population of less than 1000 individuals; it is recommended to be placed in the IUCN category VU D 1, 2.

Key words: *Begonia*, Begoniaceae, IUCN category VU D 1, 2, section *Sphenanthera*, Vietnam.

Begonia L. comprises roughly 1500 species distributed throughout the tropics and subtropics with the exception of northern Australia (Tebbitt, 2005). Because of its large size, *Begonia* has traditionally been subdivided into numerous sections. In the most recent inventory of the *Begonia* sections, Doorenbos et al. (1998) recognized 63 sections. However, since that publication, three new sections have been described (Shui et al., 2002; Forrest & Hollingsworth, 2003; de Wilde & Plana, 2003), bringing the total number to 66. Most sections are recognized based on a combination of morphological characteristics, with tepal number and characteristics of the styles, stigmas, ovaries, and fruit being particularly emphasized. As part of a taxonomic revision of Vietnamese *Begonia* conducted by the first author, a species from *Begonia*

section *Sphenanthera* (Hasskarl) Warburg is here newly recognized.

Begonia sect. *Sphenanthera* is distributed from northeastern India, eastward to Taiwan and southward to Malaysia and Indonesia (Doorenbos et al., 1998). The section currently includes almost all the ca. 25 Asian species with fleshy baccate fruit and at one time was circumscribed solely on the basis of this characteristic (e.g., Irmscher, 1925). However, Shui et al. (2002) now recognize three Asian fleshy fruited *Begonia* species as constituting the section *Leprosae* (T. C. Ku) Y. M. Shui: *B. cylindrica* D. R. Liang & X. X. Chen, *B. leprosa* Hance, and *B. longicarpa* K. Y. Guan & D. K. Tian. *Begonia* sect. *Leprosae* is distinguished from section *Sphenanthera* by its members having clavate rather than turbinate fruit (Shui et al., 2002). Currently four species from section *Sphenanthera* are recognized as occurring in Vietnam: *B. acetosella* Craib, *B. balansana* Gagnepain, *B. handelii* Irmscher, and *B. longifolia* Blume (Tebbitt, 2003a, b). A fourth species from section *Leprosae* has recently been described from Vietnam, *B. bataiensis* Kiew (Truong et al., 2005). The three traditional members of this section occur in neighboring areas of southwestern China. The new species recognized here has fleshy, spherical fruit with three thickened rib-like wings and is accordingly assigned in *Begonia* sect. *Sphenanthera*, albeit molecular data (Tebbitt et al., unpublished data) suggest that this section is polyphyletic and requires division into smaller groups.

Within *Begonia* sect. *Sphenanthera* the new species is morphologically most similar to *B. balansana* and *B. ceratocarpa* S. H. Huang & Y. M. Shui. A particularly noticeable characteristic of this group is the prominent tertiary venation on the lower leaf surfaces. The new species is distinguished most readily from *B. balansana* by its upper leaf surface that is an iridescent dark blue (rather than glossy

green), by the pistillate flowers having five tepals (rather than four) and three styles (rather than six, or sometimes five or seven), and by the fruits that are spherical with three thickened rib-like wings and which have three locules (rather than star shaped with six, or sometimes five or seven, fleshy wedge-shaped points and six, or sometimes five or seven, locules). The new species is distinguished from *B. ceratocarpa* most readily by its relatively short petiole (10–13 cm long vs. 23–30 cm long); its ciliate-denticulate leaf margin (rather than irregularly repand); its green to white tepals (rather than white, tinged pink); its outer pair of tepals in the staminate flowers, which are ovate (rather than broadly ovate to suborbicular) and are covered with red trichomes on their outer surfaces (rather than being glabrous throughout); its inner pair of tepals in the staminate flowers, which are oblong (rather than obovate to lanceolate); and its fruits, which are spherical with three thickened rib-like wings (rather than rhomboidal with three horned appendages).

Begonia hahiepiana H. Q. Nguyen & Tebbitt, sp. nov. TYPE: Vietnam. Phu Tho Province: Thanh Son Distr., Xuan Son Mun., Xuan Son Nat. Park, shade on limestone-derived soil, 324 m, 30 Nov. 2000, V. X. Phuong, N. K. Khoi, N. Q. Binh & H. Q. Nguyen 3941 (holotype, HN; isotype, MO). Figure 1.

Haec species inter species sectionis *Sphenantherae* quoad foliorum venas laterales basales abaxialiter prominentes ad *B. balansanam* et *B. ceratocarpam* accedit, sed ab ambabus floris masculini tepalis extus longe pilosis et fructu globoso alis 3 brevibus crassis praedito recedit.

Acaulescent herb, 15–18 cm tall. *Rhizome* prostrate, 4–6 mm diam., with a sparse covering of uniseriate hairs. *Stipules* persistent, red or purple, triangular to lanceolate, 7–10 × 4–6 mm, apex acuminate, margin entire; *leaves* alternate; *petiole* pink, with a sparse villose indumentum of uniseriate hairs, 10–13 cm long, grooved, joining lamina at an angle; *lamina* upper surface iridescent dark blue, glabrous, lower surface pink with dense red, villous hairs on the main veins, elsewhere glabrous, asymmetric, broadly ovate, 10–13 × 7–9 cm, apex truncate, base obliquely cordate, margin ciliate-denticulate; venation palmate, main veins 7 or 8, tertiary veins reticulate, conspicuous. *Inflorescence* 5- or 6-flowered, cymose; *peduncle* erect, densely red pilose, 2–4 cm long; *bracts* persistent, green to purple, red pilose, lanceolate, ca. 10 × 5 mm, apex acuminate, margin entire. *Flowers* green to white; *staminate flowers*: *pedicels* ca. 2 cm long; *tepals* 4, green to white, outer pair ovate, ca. 1.3 × 0.6 cm,

apex obtuse, margin entire, red pilose on outer surface; inner pair oblong, 1.2–1.8 × ca. 0.4 cm, apex obtuse to rounded, margin entire, glabrous throughout; *androphore* absent; *stamens* ca. 50, yellow, arranged in an actinomorphic cluster, ca. 0.5 mm diam.; *filaments* free, ca. 1.2 mm long; *anther* obovate, ca. 1 mm long, connective not projecting; *pistillate flowers* with pedicel ca. 0.5 cm long; *bracteoles* absent; *tepals* 5, green to white, outer 3 broadly ovate, ca. 0.8 × 0.8 cm, apex obtuse, margin entire; inner 2 oblong, 0.7–0.8 × 0.3–0.6 cm, apex obtuse to rounded, margin entire; *ovary* green, with short red indumentum, ca. 0.5 mm long, spherical with 3 thickened rib-like wings, ca. 0.3 cm diam., 3-locular, *placentation* axile, 2 placentae per locule; *styles* 3, free, 1–1.2 mm long, yellow, bifid, stigmatic papillae arranged in a spiral band. *Fruits* pendulous, green, appearing indehiscent, spherical with 3 thickened rib-like wings, ca. 0.9 cm diam., red hirsute throughout.

Distribution and habit. The new species is a narrow endemic of northern Vietnam, in Phu Tho Province (Thanh Son District). Its habitat is similar to that of *Begonia balansana*; both are terrestrial taxa on soil banks or in shaded limestone-derived soil. *Begonia balansana* is a narrow endemic of Mount Bavi, Vinh Phu Province, Vietnam, while *B. ceratocarpa* is endemic to Hekou County in southern Yunnan Province, China. Fieldwork indicates that the new species has a restricted distribution and a total population of less than 1000 individuals and is recommended to be placed in the IUCN category VU D 1, 2 (VU: vulnerable; D: criteria for population very small (1) or restricted (2)).

Etymology. The epithet honors the first author's parents Nguyen Tien Hiep and Nguyen Bich Ha, who are thanked for nurturing his interest in botany.

Paratype. VIETNAM. **Phu Tho Province:** Thanh Son Distr., Xuan Son Mun., Xuan Son National Park, shade on limestone-derived soil, N. T. Hiep et al. 6142 (HN).

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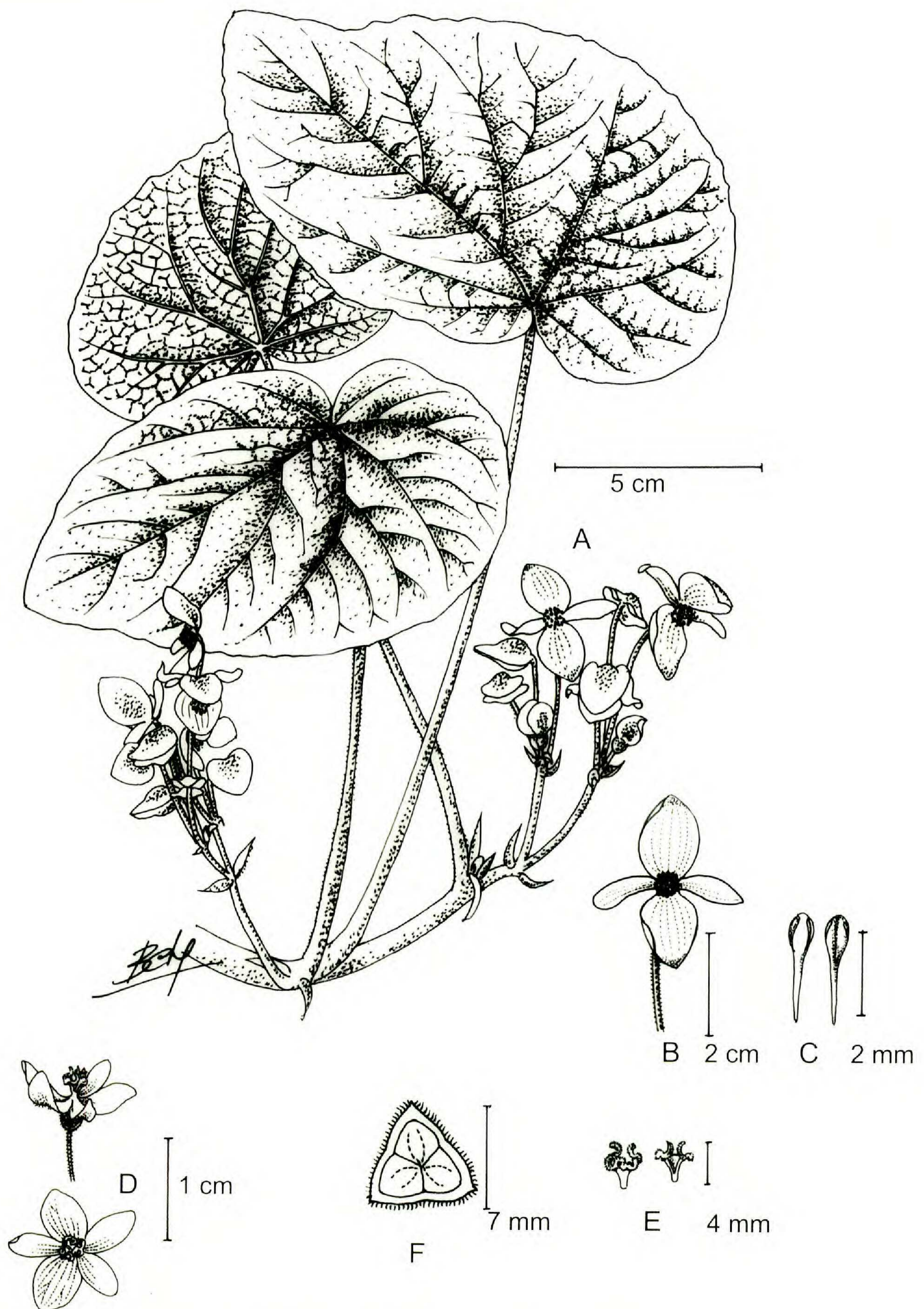


Figure 1. *Begonia hahiepiana* H. Q. Nguyen & Tebbitt. —A. Habit. —B. Staminate flower. —C. Stamens. —D. Pistillate flower. —E. Style. —F. Cross section of ovary. Drawn from the holotype, *Phuong et al.* 3941 (HN), by Bui Xuan Chuong.

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